

displayed as different types of lines for each region and are superimposed.

As a result, the eye's optical characteristic is obtained for each of the divided regions of the pupil 18.

The regional division should be made by an adequate aspect of division depending upon the purpose of the measurement. For instance, as shown in Fig. 13, the total region may be divided into 4 equal parts in a circumferential direction (A - D) and divided in 6 parts with equal spacing in a radial direction. For the regions divided further, the eye's optical characteristic may be measured.

To obtain the aspect of division as shown in Fig. 13, the total region can be divided by combining central aperture plates J1 - J6, peripheral aperture plates K1 - K5, and fan-shaped aperture plates L1 and L2 as shown in Fig. 14. For instance, by combining the central aperture plate J3, the peripheral aperture plate K2, and the fan-shaped aperture plates L1 and L2 at the positions as shown in the figure, the region D3 in Fig. 13 can be obtained.

Further, as shown in Fig. 15, an aperture plate 33 may be used where apertures 33a are formed only for the regions to be obtained. In Fig. 15, only one aperture plate 33 is shown, while 6 aperture plates may be used, each of which has an aperture deviated in a radial direction. By rotating the same aperture plate 33 by a step of  $45^\circ$ , regions positioned on the same circumference, e.g. A5, B5, C5 and D5, can be obtained.

In the above embodiment, the divided regions are formed

in an arc shape, while the regions may be divided in annular shape. For instance, by using the aperture plates 23 and 24 as shown in Fig. 2, it is possible to divide into 2 regions, i.e. central and peripheral regions. Division in an annular shape is advantageous in that the eye's optical characteristic corresponding to enlargement and shrinking of an iris can be obtained.

In the above embodiment, the polarization beam splitter is used, while the beam splitter may be replaced with a half-mirror, and polarizing plates having directions of polarization deviated by  $90^\circ$  from each other may be provided on optical paths of the projection system and the photodetection system.

According to the present invention, in an eye's optical characteristic measuring system comprising an aperture diaphragm arranged at a position approximately conjugate to a pupil of an eye under testing and for determining regions to pass a light beam on the pupil, a projection optical system for projecting a primary index image on a fundus of the eye under testing via the aperture diaphragm, a photodetection optical system for forming a secondary index image on a photoelectric detector via the aperture diaphragm by a reflected light beam from the fundus of the eye under testing, and a detecting unit for detecting a light amount intensity distribution of the secondary index image based on a signal from the photoelectric detector, the aperture diaphragm is designed to enable to change an aperture. As a result, the eye's optical characteristic can be measured for a plurality of different regions on the pupil, and

important information can be obtained for the operation such as corneal correction surgery or orthokeratology.